

CLAIM AMENDMENTS

1. - 4. (Canceled)

5. (Currently Amended) A method of depositing material on a substrate, comprising the steps of: heating the substrate with a high-power, rapid-response diode laser to create a melt pool in a laser interaction zone;

feeding material into the melt pool to create a deposit having a physical dimension;

monitoring the laser interaction zone directly, without using any source of energy other than the diode laser used to heat the substrate, to generate an optical signal indicative of the physical dimension; and

controlling the deposition using the optical signal.

6. (Previously Presented) The method of claim 5, wherein the deposition is controlled by modulating the laser.

7. (Previously Presented) The method of claim 6, wherein the modulation of the laser is in the kilohertz range.

8. (Previously Presented) The method of claim 6, wherein the modulation of the laser is up to 20 kHz.

9. (New) A method of depositing material on a substrate, comprising the steps of:

a) heating the substrate with a high-power, rapid-response diode laser to create a melt pool in a laser interaction zone;

b) feeding material into the melt pool to create a deposit having a physical dimension;

c) monitoring the laser interaction zone directly, without using any source of energy other than the diode laser used to heat the substrate, to generate an optical signal indicative of the physical dimension;

- d) feeding the optical signal to the laser to adjust the output of the laser; and
- e) repeating steps c) and d) at a rate of up to 20 kHz to achieve a desired physical dimension.